

Mr. Bernard P. Bachman
Corydon Stone and Asphalt, Inc.
P.O. Box 577
Corydon, IN 47112-0577

Re: 061-10977
First Significant Source Modification to
Part 70 No.: T061-7523-00006

Dear Mr. Bachman:

Corydon Stone and Asphalt, Inc. was issued Part 70 operating permit T061-7523-00006 on April 15, 1999 for a stationary stone quarry plant. An application to modify the source was received on May 19, 1999. Pursuant to the provisions of 326 IAC 2-7-10.5, the following emission units are approved for construction at the source:

The modification consists of modifying the one (1) asphalt drum mix plant and adding one (1) sand processing plant to the existing source consisting of the following equipment:

- (a) One (1) asphalt plant, identified as EU-02, constructed in 1990, will increase its maximum capacity from 250 tons per hour to 400 tons per hour and convert its current batch-mix plant to a drum-mix plant; and
- (b) One (1) sand processing plant, with a maximum capacity of 70 tons per hour, equipped with the following:
 - (1) two (2) conveyors, each at a maximum capacity of 70 tons per hour;
 - (2) one (1) fines screen at a maximum capacity of 70 tons per hour; and
 - (3) one (1) hopper at a maximum capacity of 70 tons per hour.

The following construction conditions are applicable to the proposed project:

General Construction Conditions

- 1. The data and information supplied with the application shall be considered part of this permit. Prior to any proposed change in construction which may affect the potential to emit (PTE) of the proposed project, the change must be approved by the Office of Air Management (OAM).
- 2. This approval to construct does not relieve the permittee of the responsibility to comply with the provisions of the Indiana Environmental Management Law (IC 13-11 through 20; 13-22 through 13-25; and 13-30), the Air Pollution Control Law (IC 13-17) and the rules promulgated thereunder, as well as other applicable local, state, and federal requirements.

Effective Date of the Permit

- 3. That pursuant to IC 13-15-5-3, this permit becomes effective upon its issuance.
- 4. That pursuant to 326 IAC 2-1-9 (Revocation), the Commissioner may revoke this permit if construction is not commenced within eighteen (18) months after receipt of this approval or if construction is suspended for a continuous period of one (1) year or more.

5. All requirements and conditions of this construction approval shall remain in effect unless modified in a manner consistent with procedures established pursuant to 326 IAC 2.

The proposed operating conditions applicable to these emission units are attached to this Source Modification approval. These proposed operating conditions shall be incorporated into the Part 70 operating permit as an administrative amendment in accordance with 326 IAC 2-7-10.5(l)(1) and 326 IAC 2-7-11.

This decision is subject to the Indiana Administrative Orders and Procedures Act - IC 4-21.5-3-5. If you have any questions on this matter, please contact Yvette de los Angeles, c/o OAM, 100 North Senate Avenue, P.O. Box 6015, Indianapolis, Indiana, 46206-6015, or call at (800) 451-6027, press 0 and ask for Duane Van Laningham or extension (3-6878) or dial (973) 575-2555, extension 3216.

Sincerely,

Paul Dubenetzky, Chief
Permits Branch
Office of Air Management

Attachments
YD/EVP

cc: File - Harrison County
U.S. EPA, Region V
Air Compliance Section Inspector - Joe Foyst
Compliance Data Section - Jerri Curless
Administrative and Development - Janet Mobley
Technical Support and Modeling - Nancy Landau

PART 70 OPERATING PERMIT OFFICE OF AIR MANAGEMENT

**Corydon Stone and Asphalt, Inc.
1100 Quarry Road
Corydon, IN 47112**

(herein known as the Permittee) is hereby authorized to operate subject to the conditions contained herein, the source described in Section A (Source Summary) of this permit.

This permit is issued in accordance with 326 IAC 2 and 40 CFR Part 70 Appendix A and contains the conditions and provisions specified in 326 IAC 2-7 and 326 IAC 2-1-3.2 as required by 42 U.S.C. 7401, et. seq. (Clean Air Act as amended by the 1990 Clean Air Act Amendments), 40 CFR Part 70.6, IC 13-15 and IC 13-17.

Operation Permit No.: T061-7523-00006	
Issued by: Janet G. McCabe, Assistant Commissioner Office of Air Management	Issuance Date: April 15, 1999
First Significant Source Modification: 061-10977	Pages Affected:
Issued by: Paul Dubenetzky, Branch Chief Office of Air Management	Issuance Date:

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SECTION A

SOURCE SUMMARY

This permit is based on information requested by the Indiana Department of Environmental Management (IDEM), Office of Air Management (OAM). The information describing the source contained in conditions A.1 through A.3 is descriptive information and does not constitute enforceable conditions. However, the Permittee should be aware that a physical change or a change in the method of operation that may render this descriptive information obsolete or inaccurate may trigger requirements for the Permittee to obtain additional permits or seek modification of this permit pursuant to 326 IAC 2, or change other applicable requirements presented in the permit application.

A.1 General Information [326 IAC 2-7-4(c)] [326 IAC 2-7-5(15)]

The Permittee owns and operates a stone quarry that includes two (2) stationary crushed stone plants, one (1) stationary asphalt batch mix plant and one (1) sand processing plant.

Responsible Official: Bernard P. Bachman, Plant Manager
Source Address: 1100 Quarry Road, Corydon, IN 47112
Mailing Address: PO Box 577, Corydon, IN 47112-0577
SIC Code: 1442, 2951
County Location: Harrison
County Status: Attainment for all criteria pollutants
Source Status: Part 70 Permit Program
Major Source under PSD Rules

A.2 Emission Units and Pollution Control Equipment Summary [326 IAC 2-7-4(c)(3)] [326 IAC 2-7-5(15)]

This stationary source consists of the following emission units and pollution control devices:

- (a) One (1) crushed stone plant, identified as EU-01A, constructed in 1958, with a maximum capacity of 450 tons per hour, equipped with the following:
 - (1) one (1) conveyor at a maximum capacity of 450 tons per hour,
 - (2) one (1) primary crusher at a maximum capacity of 450 tons per hour,
 - (3) one (1) secondary crusher at a maximum capacity of 324 tons per hour,
 - (4) one (1) tertiary crusher at a maximum capacity of 180 tons per hour,
 - (5) one (1) fines screen at a maximum capacity of 450 tons per hour,
 - (6) one (1) hopper at a maximum capacity of 450 tons per hour; and
 - (7) a water fogging system for dust control.
- (b) One (1) crushed stone plant, identified as EU-01B, constructed in 1994, with a maximum capacity of 200 tons per hour, equipped with the following:
 - (1) one (1) conveyor at a maximum capacity of 200 tons per hour,
 - (2) one (1) primary crusher at a maximum capacity of 130 tons per hour,
 - (3) one (1) secondary crusher at a maximum capacity of 138 tons per hour,
 - (4) one (1) tertiary crusher at a maximum capacity of 38 tons per hour,
 - (5) one (1) fines screen at a maximum capacity of 200 tons per hour,
 - (6) one (1) hopper at a maximum capacity of 200 tons per hour; and
 - (7) a water fogging system for dust control.
- (c) One (1) asphalt plant, identified as EU-02, constructed in 1990, equipped with one (1) drum mix dryer utilizing natural gas at a maximum rated capacity of 8 million British thermal units per hour (MMBtu/hr), with a maximum capacity of 400 tons per hour, using one (1) cyclone and one (1) baghouse in series for air pollution control, and exhausting to one (1) stack, identified as S1; and

(d) One (1) sand processing plant, with a maximum capacity of 70 tons per hour, equipped with the following:

- (1) two (2) conveyors, each at a maximum capacity of 70 tons per hour;
- (2) one (1) fines screen at a maximum capacity of 70 tons per hour; and
- (3) one (1) hopper at a maximum capacity of 70 tons per hour.

A.3 Specifically Regulated Insignificant Activities [326 IAC 2-7-1(21)] [326 IAC 2-7-4(c)]
[326 IAC 2-7-5(15)]

This stationary source does not currently have any insignificant activities, as defined in 326 IAC 2-7-1 (21) that have applicable requirements.

A.4 Part 70 Permit Applicability [326 IAC 2-7-2]

This stationary source is required to have a Part 70 permit by 326 IAC 2-7-2 (Applicability) because:

- (a) It is a major source, as defined in 326 IAC 2-7-1(22);
- (b) It is a source in a source category designated by the United States Environmental Protection Agency (U.S. EPA) under 40 CFR 70.3 (Part 70 - Applicability).

SECTION D.2

FACILITY OPERATION CONDITIONS

Facility Description [326 IAC 2-7-5(15)]

One (1) asphalt plant, identified as EU-02, constructed in 1990, equipped with one (1) drum mix dryer utilizing natural gas at a maximum rated capacity of 8 million British thermal units per hour (MMBtu/hr), with a maximum capacity of 400 tons per hour, using one (1) cyclone and one (1) baghouse in series for air pollution control, and exhausting to one (1) stack, identified as S1.

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.2.1 Particulate Matter (PM) [326 IAC 12] [40CFR Part 60.90]

Pursuant to 326 IAC 12, (40 CFR Part 60.90, Subpart I) "Standards of Performance for Hot Mix Asphalt Facilities", the particulate matter emissions from the mixing and drying operations shall be limited to 0.04 grains per dry standard cubic foot (gr/dscf). This is equivalent to a particulate matter emission rate of 11.9 pounds per hour.

D.2.2 Opacity

Pursuant to 326 IAC 12, (40 CFR Part 60.92, Subpart I) "Standards of Performance for Hot Mix Asphalt Facilities", the mixing and drying operations shall not discharge or cause the discharge into the atmosphere any gases which exhibit 20 percent opacity or greater.

D.2.3 PSD Minor Limit [326 IAC 2-2] [40 CFR 52.21]

The allowable PM and PM-10 emissions from the modification of the asphalt plant and the addition of the sand processing plant cannot exceed 40.58 tons per year (16.58 tons per year contemporaneous decrease + 24 tons per year limited emissions) for PM emissions and 18.16 tons per year (4.16 tons per year contemporaneous decrease + 14 tons per year limited emissions) for PM-10 emissions. This input limit is required to limit the potential to emit of PM and PM-10 to less than 25 and 15 tons per year, respectively. Compliance with this limit makes 326 IAC 2-2 (Prevention of Significant Deterioration) and 40 CFR 52.21 not applicable.

D.2.4 Preventive Maintenance Plan [326 IAC 2-7-5(13)]

A Preventive Maintenance Plan, in accordance with Section B - Preventive Maintenance Plan, of this permit, is required for this facility and its control device.

Compliance Determination Requirements

D.2.5 Testing Requirements [326 IAC 2-7-6(1),(6)]

Pursuant to 326 IAC 12, (40 CFR Part 60.90, Subpart I) "Standards of Performance for Hot Mix Asphalt Facilities", during the period between 30 and 36 months after issuance of this permit, the Permittee shall perform PM and opacity testing for the asphalt plant utilizing Method 5 for PM and Method 9 for opacity (40 CFR 60, Appendix A), or other methods as approved by the Commissioner. This test shall be performed once during the life of the permit from the date of this valid compliance demonstration. In addition to these requirements, IDEM may require compliance testing when necessary to determine if the facility is in compliance.

D.2.6 Particulate Matter (PM)

The cyclone and baghouse for PM control shall be in operation at all times when the asphalt plant is in operation.

Compliance Monitoring Requirements [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]

D.2.7 Visible Emissions Notations

- (a) Daily visible emission notations of the asphalt plant baghouse stack exhaust shall be performed during normal daylight operations. A trained employee shall record whether emissions are normal or abnormal.
- (b) For processes operated continuously, "normal" means those conditions prevailing, or expected to prevail, eighty percent (80%) of the time the process is in operation, not counting startup or shut down time.
- (c) In the case of batch or discontinuous operations, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions.
- (d) A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal visible emissions for that specific process.
- (e) The Compliance Response Plan for this unit shall contain troubleshooting contingency and response steps for when an abnormal emission is observed.

D.2.8 Parametric Monitoring

The Permittee shall record the total static pressure drop across the baghouse used in conjunction with the asphalt plant, at least once per shift when the asphalt plant is in operation. Unless operated under conditions for which the Compliance Response Plan specifies otherwise, the pressure drop across the baghouse shall be maintained within the range of 5.0 and 8.0 inches of water or a range established during the latest stack test. The Compliance Response Plan for this unit shall contain troubleshooting contingency and response steps for when the pressure reading is outside of the above mentioned range for any one reading.

The instrument used for determining the pressure shall comply with Section C - Pressure Gauge Specifications, of this permit, shall be subject to approval by IDEM, OAM, and shall be calibrated at least once every six (6) months.

D.2.9 Baghouse Inspections

An inspection shall be performed each calendar quarter of all bags controlling the asphalt plant. All defective bags shall be replaced.

D.2.10 Broken or Failed Bag Detection

In the event that bag failure has been observed:

- (a) The affected compartments will be shut down immediately until the failed units have been repaired or replaced. Within eight (8) hours of the determination of failure, response steps according to the timetable described in the Compliance Response Plan shall be initiated. For any failure with corresponding response steps and timetable not described in the Compliance Response Plan, response steps shall be devised within eight (8) hours of discovery of the failure and shall include a timetable for completion. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).
- (b) For single compartment baghouses, failed units and the associated process will be shut down immediately until the failed units have been repaired or replaced. Operations

may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

Record Keeping and Reporting Requirement [326 IAC 2-7-5(3)] [326 IAC 2-7-19]

D.2.11 Record Keeping Requirements

- (a) To document compliance with Condition D.2.7, the Permittee shall maintain records of daily visible emission notations of the asphalt plant baghouse stack exhaust.
- (b) To document compliance with Condition D.2.8, the Permittee shall maintain the following:
 - (1) Daily records of the following operational parameters during normal operation:
 - (A) Inlet and outlet differential static pressure; and
 - (B) Cleaning cycle: frequency and differential pressure
 - (2) Documentation of all response steps implemented, per event .
 - (3) Operation and preventive maintenance logs, including work purchases orders, shall be maintained.
 - (4) Quality Assurance/Quality Control (QA/QC) procedures.
 - (5) Operator standard operating procedures (SOP).
 - (6) Manufacturer's specifications or its equivalent.
 - (7) Equipment "troubleshooting" contingency plan.
- (c) To document compliance with Condition D.2.9, the Permittee shall maintain records of the results of the inspections required under Condition D.2.9 and the dates the vents are redirected.
- (d) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

SECTION D.3 FACILITY OPERATION CONDITIONS

Facility Description [326 IAC 2-7-5(15)]

One (1) sand processing plant, with a maximum capacity of 70 tons per hour, equipped with the following:

- (1) two (2) conveyors, each at a maximum capacity of 70 tons per hour;
- (2) one (1) fines screen at a maximum capacity of 70 tons per hour; and
- (3) one (1) hopper at a maximum capacity of 70 tons per hour.

Emission Limitations and Standards

D.3.1 Opacity

Pursuant to 326 IAC 12, (40 CFR Part 60.670-676, Subpart OOO) "Standard of Performance for Nonmetallic Mineral Processing Plant", the sand processing plant shall not discharge or cause the discharge into the atmosphere from any transfer point on belt conveyors or from any other affected facility any fugitive emissions which exhibit greater than 10 % opacity.

D.3.2 Particulate Matter (PM) [326 IAC 6-3]

Pursuant to 326 IAC 6-3 (Process Operations), the allowable PM emission rate from the woodworking facilities shall not exceed 47.77 pounds per hour when operating at a process weight rate of 140,000 pounds per hour.

The pounds per hour limitation was calculated with the following equation:

Interpolation and extrapolation of the data for the process weight rate in excess of 60,000 pounds per hour shall be accomplished by use of the equation:

$$E = 55.0 P^{0.11} - 40 \quad \text{where } E = \text{rate of emission in pounds per hour; and} \\ P = \text{process weight rate in tons per hour}$$

D.3.3 PSD Minor Limit [326 IAC 2-2] [40 CFR 52.21]

The input of sand to the two (2) conveyors, one (1) fines screen, and one (1) hopper shall be less than 70 tons per hour. The allowable PM and PM-10 emissions from the modification of the asphalt plant and the addition of the sand processing plant cannot exceed 40.58 tons per year (16.58 tons per year contemporaneous decrease + 24 tons per year limited emissions) for PM emissions and 18.16 tons per year (4.16 tons per year contemporaneous decrease + 14 tons per year limited emissions) for PM-10 emissions. This input limit is required to limit the potential to emit of PM and PM-10 to less than 25 and 15 tons per year, respectively. Compliance with this limit makes 326 IAC 2-2 (Prevention of Significant Deterioration) and 40 CFR 52.21 not applicable.

D.3.4 Preventive Maintenance Plan [326 IAC 2-7-5(13)]

A Preventive Maintenance Plan, in accordance with Section B - Preventive Maintenance Plan, of this permit, is required for this facility and its control device.

Compliance Determination Requirements

D.3.5 Testing Requirements [326 IAC 2-7-6(1),(6)]

The Permittee is not required to test these facilities by this permit. However, IDEM may require compliance testing at any specific time when necessary to determine if the facility is in compliance. If testing is required by IDEM, compliance with the opacity limits specified in Condition D.3.1 shall be determined by a performance test conducted in accordance with Section C - Performance Testing.

Compliance Monitoring Requirements [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]

D.3.6 Visible Emissions Notations

- (a) Daily visible emission notations of the sand processing plant system ductworks and associated components exhaust for evidence of holes or erosions shall be performed during normal daylight operations when facilities are in operation. A trained employee shall record whether emissions are normal or abnormal.
- (b) For processes operated continuously, "normal" means those conditions prevailing, or expected to prevail, eighty percent (80%) of the time the process is in operation, not counting startup or shut down time.
- (c) In the case of batch or discontinuous operations, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions.
- (d) A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal visible emissions for that specific process.
- (e) The Compliance Response Plan for this unit shall contain troubleshooting contingency and response steps for when an abnormal emission is observed.

Record Keeping and Reporting Requirement [326 IAC 2-7-5(3)] [326 IAC 2-7-19]

D.3.7 Record Keeping Requirements

- (a) To document compliance with Condition D.3.6, the Permittee shall maintain records of daily visible emission notations of the sand processing plant system ductworks and associated components exhaust.
- (b) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

Indiana Department of Environmental Management Office of Air Management

Addendum to the Technical Support Document for First Significant Source Modification

Source Name: Corydon Stone and Asphalt, Inc.
Source Location: 1100 Quarry Road, Corydon, Indiana 47112
County: Harrison
Source Modification No.: 061-10977-00006
SIC Code: 1442, 2951
Permit Reviewer: Yvette de los Angeles/EVP

On August 11, 1999, the Office of Air Management (OAM) had a notice published in the Corydon Democrat, Corydon, Indiana, Indiana, stating that Corydon Stone and Asphalt, Inc. had applied for a First Significant Source Modification to operate a stone quarry plant. The notice also stated that OAM proposed to issue a First Significant Source Modification for this installation and provided information on how the public could review the proposed First Significant Source Modification and other documentation. Finally, the notice informed interested parties that there was a period of thirty (30) days to provide comments on whether or not this permit should be issued as proposed.

On July 28, 1999, Jeffery Korman of Bruce Carter Associates commented on behalf of Corydon Stone and Asphalt, Inc., submitted comments on the proposed construction permit. The summary of the comments and corresponding responses is as follows:

Comment 1

Bruce Carter Associates L.L.C. is requesting a change to Section D.2.7 which currently reads:

"The instrument used for determining the pressure shall comply with Section C- Pressure Gauge Specifications, of this permit, shall be subject to approval by IDEM, OAM, and shall be calibrated at least once every six (6) months."

Corydon Stone and Asphalt, Inc. operates the asphalt plant for approximately 9 months of each year. During shutdown, Corydon Stone and Asphalt, Inc. performs routine maintenance and cleaning, which includes calibration of the above referenced pressure gauge. Corydon Stone and Asphalt, Inc. does not have calibration capabilities onsite and must therefore contract an outside calibration firm. Due to these circumstances, Bruce Carter Associates L.L.C. requests a wording change to read "once every twelve (12) months."

Response 1

The OAM has determined that semiannual pressure gauge calibration is necessary to verify that accurate pressure drop measurements are being recorded. There were no changes to the final permit from this comment.

Indiana Department of Environmental Management Office of Air Management

Technical Support Document (TSD) for a Source Modification to a Part 70 Operating Permit

Source Background and Description

Source Name:	Corydon Stone and Asphalt, Inc.
Source Location:	1100 Quarry Road, Corydon, Indiana 47112
County:	Harrison
SIC Code:	1442, 2951
Operation Permit No.:	T061-7523-00006
Operation Permit Issuance Date:	April 15, 1999
Source Modification No.:	061-10977-00006
Permit Reviewer:	Yvette de los Angeles/EVP

The Office of Air Management (OAM) has reviewed a modification application from Corydon Stone and Asphalt, Inc. relating to the operation of a stone quarry plant.

History

On May 10, 1999, Corydon Stone and Asphalt, Inc. submitted an application to the OAM requesting to modify the one (1) asphalt drum mix plant and to add one (1) sand processing plant to the existing source. Corydon Stone and Asphalt, Inc. was issued a Part 70 permit (T061-7523-00006) on April 15, 1999. The changes proposed to the Title V is located at the end of this document.

New Emission Units and Pollution Control Equipment

The application includes information relating to the construction and operation of the following equipment:

- (a) One (1) asphalt plant, identified as EU-02, equipped with one (1) drum mix dryer utilizing natural gas at a maximum rated capacity of 8 million British thermal units per hour (MMBtu/hr), with a maximum capacity of 400 tons per hour, using the existing one (1) cyclone and the existing one (1) baghouse in series for air pollution control, and exhausting to the existing one (1) stack, identified as S1.

This new equipment is replacing the one (1) asphalt plant, identified as EU-02, constructed in 1990, equipped with one (1) batch mix dryer utilizing natural gas at a maximum rated capacity of 8 million British thermal units per hour (MMBtu/hr), with a maximum capacity of 250 tons per hour, using one (1) cyclone and one (1) baghouse in series for air pollution control, and exhausting to one (1) stack, identified as S1.

- (b) One (1) sand processing plant, with a maximum capacity of 70 tons per hour, equipped with the following:
 - (1) two (2) conveyors, each at a maximum capacity of 70 tons per hour;
 - (2) one (1) fines screen at a maximum capacity of 70 tons per hour; and
 - (3) one (1) hopper at a maximum capacity of 70 tons per hour.

Existing Approvals

The source was issued a Part 70 Operating Permit (T061-7523-00006) on April 15, 1999.

Enforcement Issue

There are no enforcement actions pending.

Recommendation

The staff recommends to the Commissioner that the Significant Source Modification be approved. This recommendation is based on the following facts and conditions:

Unless otherwise stated, information used in this review was derived from the application and additional information submitted by the applicant.

An application for the purposes of this review was received on May 10, 1999, with additional information received on July 14, 1999.

Emission Calculations

See Appendix A of this document for detailed emissions calculations (five (5) pages).

Potential To Emit of Modification

Pursuant to 326 IAC 2-1.1-1(16), Potential to Emit is defined as "the maximum capacity of a stationary source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U. S. EPA."

This table reflects the PTE before controls. Control equipment is not considered federally enforceable until it has been required in a federally enforceable permit.

The PTE listed is the combined PTE for asphalt plant operating at 400 tons per hour and the sand processing plant operating at 70 tons per hour.

Pollutant	Potential To Emit (tons/year)
PM	33,306.16
PM-10	7,7548.88
SO ₂	0.02
VOC	11.26
CO	2.94
NO _x	3.50

Note: For the purpose of determining Title V applicability for particulates, PM-10, not PM, is the regulated pollutant in consideration.

HAP's	Potential Emissions (tons/year)
Acetaldehyde	less than 10
Acrolein	less than 10
Benzene	less than 10
Ethyl Benzene	less than 10
Formaldehyde	less than 10
Methy Ethyl Ketone	less than 10
Propionaldehyde	less than 10
Quinone	less than 10

Toluene	less than 10
Xylene	less than 10
Total Polycyclic Organic Matter	less than 10
TOTAL HAP	less than 25

- (a) The potential to emit (as defined in 326 IAC 2-1.1-1(16)) of PM-10 is equal to or greater than 100 tons per year. Therefore, the source is subject to the provisions of 326 IAC 2-7-10.5.

Justification for Modification

The Title V permit is being modified through a Significant Source Modification. This modification is being performed pursuant to 326 IAC 2-7-10.5(f)(4), where any modification with a potential to emit greater than or equal to twenty-five (25) tons per year of any of the criteria pollutants.

Source Status

Existing Source PSD or Emission Offset Definition (emissions after controls, based upon 8760 hours of operation per year at rated capacity and/or as otherwise limited):

Pollutant	Emissions (tons/year)
PM	280.425
PM-10	7.831
SO ₂	0.000
VOC	0.000
CO	0.000
NOx	0.000

- (a) This existing source is a major stationary source because an attainment regulated pollutant is emitted at a rate of 250 tons per year or more, and it is not one of the 28 listed source categories.
- (b) These emissions are based upon Part 70 permit (T061-7523-00006) issued on April 15, 1999.

Potential to Emit After Controls for the Modification

The table below summarizes the total potential to emit, reflecting all limits, of the significant emission units for the modification.

	Limited Potential to Emit (tons/year)						
Process/facility	PM	PM-10	SO ₂	VOC	CO	NO _x	Total HAPs
Asphalt Plant operating at 400 tons per hour (After Controls)							
Aggregate Drying: Drum-Mix Plant	33.29	7.53	0.00	11.07	0.00	0.00	11.07
Bin Loading & Conveying	0.36	0.17	0.00	0.00	0.00	0.00	0.00
Screening & Batch Drops	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Unpaved Roads	0.38	0.13	0.00	0.00	0.00	0.00	0.00
Storage Piles	0.16	0.06	0.00	0.00	0.00	0.00	0.00
Sand Processing Plant operating at 70 tons per hour (After Controls)							
Loading & Unloading	1.01	1.01	0.00	0.00	0.00	0.00	0.00
Screening	0.97	0.97	0.00	0.00	0.00	0.00	0.00
Conveyor Transfer	0.09	0.09	0.00	0.00	0.00	0.00	0.00
Storage	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Transporting	0.60	0.60	0.00	0.00	0.00	0.00	0.00
Contemporaneous Increases	---	---	---	---	---	---	---
* Contemporaneous Decreases	16.58	4.16	---	---	---	---	---
Net Emissions	20.30	6.41	0.00	11.07	0.00	0.00	11.07
PSD Significant Level	25	15	40	40	100	40	NA

* 16.58 tons per year for PM emission 4.16 tons per year for PM-10 emissions are actual 1997 and 1998 emissions from the existing asphalt plant.

This modification to an existing major stationary source is not major because the emissions increase is less than the PSD significant levels. Therefore, pursuant to 326 IAC 2-2 and 40 CFR 52.21, the PSD requirements do not apply.

County Attainment Status

The source is located in Harrison County.

Pollutant	Status
PM-10	attainment
SO ₂	attainment
NO ₂	attainment
Ozone	attainment
CO	attainment
Lead	attainment

- (a) Volatile organic compounds (VOC) and oxides of nitrogen (NO_x) are precursors for the formation of ozone. Therefore, VOC and NO_x emissions are considered when evaluating the rule applicability relating to the ozone standards. Harrison County has been designated as attainment or unclassifiable for ozone.

Part 70 Permit Determination

326 IAC 2-7 (Part 70 Permit Program)

This existing source has a Part 70 (T061-7523-00006) permit, issued on April 15, 1999. The equipment being reviewed under this permit shall be incorporated in the Part 70 permit.

Federal Rule Applicability

- (a) The sand processing plant is subject to the New Source Performance Standard, 326 IAC 12, (40 CFR 60.670-676, Subpart OOO). The sand processing plant shall not discharge or cause the discharge into the atmosphere from any transfer point on belt conveyors or from any other affected facility any fugitive emissions which exhibit greater than 10 % opacity.
- (b) All Federal Rules cited in Part 70 Operating Permit T061-7523-00006, issued on April 15, 1999, continue to apply to this source.

State Rule Applicability - Entire Source

There are no new State Rules applicable on a source-wide basis due to this First Significant Source Modification. All source-wide State Rules cited in Part 70 Operating Permit T061-7523-00006, issued on April 15, 1999, continue to apply to this source.

State Rule Applicability - Individual Facilities

326 IAC 2-2 (Prevention of Significant Deterioration)

This facility is not subject to 326 IAC 2-2 (Prevention of Significant Deterioration), however the existing source is a major source. Therefore, any modification to this source which has the potential to emit of any of the criteria pollutants greater than the major modification thresholds, would be subject to the requirements of 326 IAC 2-2.

- (a) The asphalt plant will modify its existing equipment and its maximum capacity. For PM and PM-10, the net emission increase from any modification must be limited to 24 and 14 tons per year, respectively. The asphalt plant reported total actual PM emissions of 16.58 tons per year for 1997 and 1998 and a total actual PM-10 emissions of 4.16 tons per year for 1997 and 1998. Therefore, the allowable PM and PM-10 emissions from the modification cannot exceed 40.58 tons per year (16.58 tons per year contemporaneous decrease + 24 tons per year limited emissions) for PM emissions and 18.16 tons per year (4.16 tons per year contemporaneous decrease + 14 tons per year limited emissions) for PM-10 emissions.
- (b) The sand processing plant does not trigger PSD applicability. The PM and PM-10 emissions from this facility are equal to 2.68 tons per year, after controls, which is less than PSD thresholds for PM and PM-10.

326 IAC 6-3-2 (Process Operations)

- (a) The particulate matter (PM) from the sand processing plant shall be limited by the following:

Interpolation and extrapolation of the data for the process weight rate in excess of sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$$E = 55.0 P^{0.11} - 40 \quad \text{where } E = \text{rate of emission in pounds per hour and} \\ P = \text{process weight rate in tons per hour}$$

$$E = 55.0 (70^{0.11}) - 40 = 47.77 \text{ lbs/hr} = 209.23 \text{ tons/yr}$$

Based on this calculation, the controlled potential PM emissions of 2.68 tons/yr are less than the allowable emissions of 209.23 tons/yr. Therefore, sand processing plant complies with the rule.

- (b) The asphalt plant is not subject to the requirements of 326 IAC 6-3-2 (Process Operations) because they are subject to 326 IAC 12 (New Source Performance Standard).

326 IAC 6-5 (Fugitive Particulate Matter Emission Limitations)

This source is subject to 326 IAC 6-5 for fugitive particulate matter emissions. Pursuant to 326 IAC 6-5, for any new source which has not received all the necessary preconstruction approvals before December 13, 1985, a fugitive dust control plan must be submitted, reviewed and approved. The fugitive dust control plan for this source includes the following:

- (a) Fugitive particulate matter emissions from paved roads, unpaved roads, and parking lots shall be controlled by one or more of the following methods:

Paved roads and parking lots:

- (1) cleaning by vacuum sweeping on an as needed basis (monthly at a minimum);
- (2) power brooming while wet either from rain or application of water.

Unpaved roads and parking lots:

- (1) paving with asphalt;
- (2) treating with emulsified asphalt on an as needed basis;
- (3) treating with water on an as needed basis;
- (4) double chip and seal the road surface and maintained on an as needed basis.

- (b) Fugitive particulate matter emissions from aggregate stockpiles shall be controlled by one or more of the following methods on an as needed basis:

- (1) maintaining minimum size and number of stock piles of aggregate;

- (2) treating around the stockpile area with emulsified asphalt;
 - (3) treating around the stockpile area with water;
 - (4) treating the stockpiles with water.
- (c) Fugitive particulate matter emissions from outdoor conveying of aggregates shall be controlled by the following method on an as needed basis:
 - (1) applying water at the feed and the intermediate points.
- (d) Fugitive particulate matter emissions from the transfer of aggregates shall be controlled by one of the following methods:
 - (1) minimize the vehicular distance between transfer points;
 - (2) enclose the transfer points;
 - (3) apply water on transfer points on an as needed basis.
- (e) Fugitive particulate matter emissions from transportation of aggregate by truck, front end loader, etc. shall be controlled by one of the following methods:
 - (1) tarping the aggregate hauling vehicles;
 - (2) maintain vehicle bodies in a condition to prevent leakage;
 - (3) spray the aggregates with water;
 - (4) maintain a 10 MPH speed limit in the yard.
- (f) Fugitive particulate matter emissions from the loading and unloading of aggregate shall be controlled by one of the following methods:
 - (1) reduce free fall distance to a minimum;
 - (2) reduce the rate of discharge of the aggregate;
 - (3) spray the aggregate with water on an as needed basis.

326 IAC 8-5-2 (Miscellaneous Operations: Asphalt Paving)

This source is not subject to 326 IAC 8-5-2 (Miscellaneous Operations: Asphalt Paving) because this source does not use cutback asphalt or asphalt emulsion.

Compliance Requirements

Permits issued under 326 IAC 2-7 are required to ensure that sources can demonstrate compliance with applicable state and federal rules on a more or less continuous basis. All state and federal rules contain compliance provisions, however, these provisions do not always fulfill the requirement for a more or less continuous demonstration. When this occurs IDEM, OAM, in conjunction with the source, must develop specific conditions to satisfy 326 IAC 2-7-5. As a result, compliance requirements are divided into two sections: Compliance Determination Requirements and Compliance Monitoring Requirements.

Compliance Determination Requirements in Section D of the permit are those conditions that are found more or less directly within state and federal rules and the violation of which serves as grounds for enforcement action. If these conditions are not sufficient to demonstrate continuous compliance, they will be supplemented with Compliance Monitoring Requirements, also Section D of the permit. Unlike Compliance Determination Requirements, failure to meet Compliance Monitoring conditions would serve as a trigger for corrective actions and not grounds for enforcement action. However, a violation in relation to a compliance monitoring condition will arise through a source's failure to take the appropriate corrective actions within a specific time period.

The compliance monitoring requirements applicable to this source are as follows:

1. The sand processing plant has applicable compliance monitoring conditions as specified below:
 - (a) Daily visible emissions notations of the sand processing plant shall be performed during normal daylight operations. A trained employee will record whether emissions are normal or abnormal. For processes operated continuously "normal" means those conditions prevailing, or expected to prevail, eighty percent (80%) of the time the process is in operation, not counting startup or shut down time. In the case of batch or discontinuous operations, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions. A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal visible emissions for that specific process. The Compliance Response Plan for this unit shall contain troubleshooting contingency and responsive steps for when an abnormal emission is observed.

These monitoring conditions are necessary because the sand processing plant must operate properly to ensure compliance with 326 IAC 2-2 (Prevention of Significant Deterioration) and 326 IAC 2-7 (Part 70).

Air Toxic Emissions

Indiana presently requests applicants to provide information on emissions of the 188 hazardous air pollutants (HAPs) set out in the Clean Air Act Amendments of 1990. These pollutants are either carcinogenic or otherwise considered toxic and are commonly used by industries. They are listed as air toxics on the Office of Air Management (OAM) Part 70 Application Form GSD-08.

- (a) This source will emit levels of air toxics less than those which constitute a major source according to Section 112 of the 1990 Clean Air Act Amendments.
- (b) See attached calculations for detailed air toxic calculations (Page 3 of 5).

Changes Proposed

The following changes have been made to the Part 70 Operating Permit (T061-7523-00009):

- (a) The name of the company has been changed from Corydon Crushed Stone, Inc. to Corydon Stone and Asphalt, Inc.
- (b) Condition A.1, Page 5 of 37 will be modified as follows:

A.1 General Information [326 IAC 2-7-4(c)] [326 IAC 2-7-5(15)]

The Permittee owns and operates a stone quarry that includes two (2) stationary crushed stone plants, ~~and~~ one (1) stationary asphalt batch mix plant, **and one (1) sand processing plant.**

Responsible Official: Bernard P. Bachman, Plant Manager
Source Address: 1100 Quarry Road, Corydon, IN 47112
Mailing Address: PO Box 577, Corydon, IN 47112-0577
SIC Code: ~~3284~~ **1442, 2951**
County Location: Harrison
County Status: Attainment for all criteria pollutants
Source Status: Part 70 Permit Program
Major Source under PSD Rules

- (c) Condition A.2, Page 5 of 37

The listing of emission units will be modified as follows:

A.2 Emission Units and Pollution Control Equipment Summary [326 IAC 2-7-4(c)(3)]
[326 IAC 2-7-5(15)]

This stationary source consists of the following emission units and pollution control devices:

- (c) One (1) crushed stone plant, identified as EU-01A, constructed in 1958, with a maximum capacity of 450 tons per hour, equipped with the following:
 - (1) one (1) conveyor at a maximum capacity of 450 tons per hour,
 - (2) one (1) primary crusher at a maximum capacity of 450 tons per hour,
 - (3) one (1) secondary crusher at a maximum capacity of 324 tons per hour,
 - (4) one (1) tertiary crusher at a maximum capacity of 180 tons per hour,
 - (5) one (1) fines screen at a maximum capacity of 450 tons per hour,
 - (6) one (1) hopper at a maximum capacity of 450 tons per hour; and
 - (7) a water fogging system for dust control.
- (b) One (1) crushed stone plant, identified as EU-01B, constructed in 1994, with a maximum capacity of 200 tons per hour, equipped with the following:
 - (1) one (1) conveyor at a maximum capacity of 200 tons per hour,
 - (2) one (1) primary crusher at a maximum capacity of 130 tons per hour,
 - (3) one (1) secondary crusher at a maximum capacity of 138 tons per hour,
 - (4) one (1) tertiary crusher at a maximum capacity of 38 tons per hour,
 - (5) one (1) fines screen at a maximum capacity of 200 tons per hour,
 - (6) one (1) hopper at a maximum capacity of 200 tons per hour; and
 - (7) a water fogging system for dust control.
- (c) One (1) asphalt plant, identified as EU-02, constructed in 1990, equipped with one (1) ~~batch~~ **drum** mix dryer utilizing natural gas at a maximum rated capacity of 8 million British thermal units per hour (MMBtu/hr), with a maximum capacity of ~~250~~ **400** tons per hour, using one (1) cyclone and one (1) baghouse in series for air pollution control, and exhausting to one (1) stack, identified as S1- ; **and**
- (d) **One (1) sand processing plant, with a maximum capacity of 70 tons per hour, equipped with the following:**
 - (1) **two (2) conveyors, each at a maximum capacity of 70 tons per hour;**
 - (2) **one (1) fines screen at a maximum capacity of 70 tons per hour; and**
 - (3) **one (1) hopper at a maximum capacity of 70 tons per hour.**

- (d) The Facility Description in Section D.2 (Page 31 of 37) will be modified as follows:

Facility Description [326 IAC 2-7-5(15)]

One (1) asphalt plant, identified as EU-02, constructed in 1990, equipped with one (1) ~~batch~~ **drum** mix dryer utilizing natural gas at a maximum rated capacity of 8 million British thermal units per hour (MMBtu/hr), with a maximum capacity of ~~250~~ **400** tons per hour, using one (1) cyclone and one (1) baghouse in series for air pollution control, and exhausting to one (1) stack, identified as S1.

- (e) Condition D.2.3 was added to Section 2 as follows (all subsequent conditions have been

renumbered):

D.2.3 PSD Minor Limit [326 IAC 2-2] [40 CFR 52.21]

The allowable PM and PM-10 emissions from the modification of the asphalt plant and the addition of the sand processing plant cannot exceed 40.58 tons per year (16.58 tons per year contemporaneous decrease + 24 tons per year limited emissions) for PM emissions and 18.16 tons per year (4.16 tons per year contemporaneous decrease + 14 tons per year limited emissions) for PM-10 emissions. This input limit is required to limit the potential to emit of PM and PM-10 to less than 25 and 15 tons per year, respectively. Compliance with this limit makes 326 IAC 2-2 (Prevention of Significant Deterioration) and 40 CFR 52.21 not applicable.

- (f) Section D.3 (Pages 33a and 33b) was added to the existing Title V (T061-7523-00006) permit.

Conclusion

The operation of this stone quarry plant shall be subject to the conditions of the attached proposed **First Significant Source Modification to Part 70 Permit No. 061-10977-00006**.

Company Name: Corydon Stone and Asphalt Inc.
Plant Location: 1100 Quarry Road, Corydon, IN 47112
County: Harrison
Date: 09/24/99
Permit Reviewer: Yvette de los Angeles/EVP

**** aggregate dryer burner****

The following calculations determine the amount of emissions created by natural gas combustion, from the aggregate dryer burner, based on 8,760 hours of operation and US EPA's AP-42, 5th Edition, Section 1.4 - Natural Gas Combustion, Tables 1.4-1 and 1.4-2.

Criteria Pollutant:	$\frac{8 \text{ MMBtu/hr} \times 8,760 \text{ hr/yr}}{1000 \text{ Btu/cf} \times 2,000 \text{ lb/ton}}$	* Ef (lb/MMcf) = (ton/yr)
P M:	1.9 lb/MMcf =	0.07 ton/yr
P M-10:	7.6 lb/MMcf =	0.27 ton/yr
S O 2:	0.6 lb/MMcf =	0.02 ton/yr
N O x:	100.0 lb/MMcf =	3.50 ton/yr
V O C:	5.5 lb/MMcf =	0.19 ton/yr
C O:	84.0 lb/MMcf =	2.94 ton/yr

**** aggregate drying: drum-mix plant ****

The following calculations determine the amount of worst case emissions created by aggregate drying before controls, based on 8,760 hours of use and USEPA's AP-42, 5th Edition, Section 11.1 - Hot Mix Asphalt Plants, Tables 11.1-5 and 11.1-10 for a drum mix dryer which has the capability of combusting either fuel oil or natural gas:

Pollutant:	Ef	lb/ton x	400	ton/hr x	8,760 hr/yr
			2,000	lb/ton	

Criteria Pollutant:			
P M:	19	lb/ton =	33,288.00 ton/yr
P M-10:	4.3	lb/ton =	7,533.60 ton/yr
VOC:	0.006317	lb/ton =	11.07 ton/yr

The VOC emission factor represents the sum of the HAP emission factors from the dryer which were assumed to be VOC.

**** conveying / handling ****

The following calculations determine the amount of emissions created by wet (>1.5% moisture) material handling, based on 8,760 hours of use and AP-42, Section 11.19.2, Table 11.19.2-2. Emission factors for process operations are as follows:

PM-10 Emissions Per Operation:

$$\frac{400 \text{ ton/hr} \times 8,760 \text{ hrs/yr} \times \text{Ef (lb/ton of material)} \times \text{Number of Similar Operations}}{2,000 \text{ lb/ton}} = (\text{ton/yr})$$

Operation

Truck Loading: 1 operation(s) x 1.0E-04 lb/ton of material = 0.18 ton/yr

Conveyor Transfers: 2 operation(s) x 4.8E-05 lb/ton of material = 0.17 ton/yr

Screening: 1 operation(s) x 8.4E-04 lb/ton of material = 1.47 ton/yr

Batch Drops: 1 operation(s) x 1.0E-04 lb/ton of material = 0.18 ton/yr

Total PM 10 Emissions: 1.99 ton/yr
Total PM Emissions: 4.18 ton/yr

Total PM Emissions (tons/yr) = 2.1 * Total PM-10 Emissions (tons/yr) based on US EPA's AP-42, 5th Edition, Section 11.19.2, Table 11.19.2-2, footnote c.

Company Name:
Plant Location:
County:
Date:
Permit Reviewer:

Corydon Stone and Asphalt Inc.
1100 Quarry Road, Corydon, IN 47112
Harrison
09/24/99
Yvette de los Angeles/EVP

**** unpaved roads ****

The following calculations determine the amount of emissions created by vehicle traffic on unpaved roads, based on 8,760 hours of use and AP-42, Ch 13.2.1.

Dump Truck

15.3 trip/hr x
0.08 mile/trip x
1 (round trip) x
8,760 hr/yr = 10722.24 miles per year

$E_f = k \cdot 5.9 \cdot (s/12) \cdot (S/30) \cdot (W/3)^{0.7} \cdot (w/4)^{0.5} \cdot ((365-p)/365)$
= 0.14 lb/mile
where k = 0.8 size multiplier)
s = 0.5 % silt content of unpaved roads
p = 125 days of rain greater than or equal to 0.01 inches
S = 5 miles/hr vehicle speed
W = 20 tons average vehicle weight
w = 12 wheels

0.14 lb/mi x 10722.24 mi/yr = 0.76 tons/yr
2000 lb/ton

P M-10: 35% of PM = 0.26 tons/yr

Total PM Emissions From Unpaved Roads = 0.76 tons/yr

Total PM-10 Emissions From Unpaved Roads = 0.26 tons/yr

**** storage ****

The following calculations determine the amount of emissions created by wind erosion of storage stockpiles, based on 8,760 hours of use and USEPA's AP-42 (Pre 1983 Edition), Section 11.2.3.

Material	Silt Content (wt %)	Pile Size (acres)	Storage Capacity (tons)	P M Emissions tons/yr	P M-10 Emissions tons/yr
Crushed Stone	0.5	3.00	NA	0.32	0.11
Total				0.32	0.11

Sample Calculation:

$E_f = 1.7 \cdot (s/1.5) \cdot (365-p)/235 \cdot (f/15)$
= 0.58 lb/acre/day
where s = 0.5 % silt
p = 125 days of rain greater than or equal to 0.01 inches
f = 15 % of wind greater than or equal to 12 mph

$E_p (\text{storage}) = \frac{E_f \cdot (365 \text{ day/yr}) \cdot (\text{pile size in acres})}{(2,000 \text{ lb/ton})}$

PM = 0.32 tons/yr P M-10: 35% of PM = 0.11 tons/yr

**** summary of source emissions before controls ****

Criteria Pollutants:

P M: 33,293.25 ton/yr
P M-10: 7,535.97 ton/yr
S O 2: 0.02 ton/yr
N O x: 3.50 ton/yr
V O C: 11.26 ton/yr (VOCs include HAPs from aggregate drying operation)
C O: 2.94 ton/yr

Company Name: Corydon Stone and Asphalt Inc.
 Plant Location: 1100 Quarry Road, Corydon, IN 47112
 County: Harrison
 Date: 09/24/99
 Permit Reviewer: Yvette de los Angeles/EVP

**** source emissions after controls ****

aggregate drying:			
P M:	33,288.00 ton/yr x	0.1% emitted after controls =	33.29 ton/yr
P M-10:	7,533.60 ton/yr x	0.1% emitted after controls =	7.53 ton/yr
bin loading & conveying:			
P M:	0.72 ton/yr x	50% emitted after controls =	0.36 ton/yr
P M-10:	0.34 ton/yr x	50% emitted after controls =	0.17 ton/yr
screening & batch drops:			
P M:	3.46 ton/yr x	0.2% emitted after controls =	0.01 ton/yr
P M-10:	1.65 ton/yr x	0.2% emitted after controls =	0.00 ton/yr
unpaved roads:			
P M:	0.76 ton/yr x	50% emitted after controls =	0.38 ton/yr
P M-10:	0.26 ton/yr x	50% emitted after controls =	0.13 ton/yr
storage piles:			
P M:	0.32 ton/yr x	50% emitted after controls =	0.16 ton/yr
P M-10:	0.11 ton/yr x	50% emitted after controls =	0.06 ton/yr

**** summary of source emissions after controls ******Criteria Pollutant:**

P M:	34.19 tons/yr
P M-10:	7.90 tons/yr
S O 2:	0.02 tons/yr
N O x:	3.50 tons/yr
V O C:	11.26 tons/yr
C O:	2.94 tons/yr

Hazardous Air Pollutants (HAPs)**** aggregate drying: drum-mix plant ****

The following calculations determine the amount of HAP emissions created by aggregate drying before & after controls, based on 8,760 hours of use and USEPA's AP-42, 5th Edition, Section 11.1 - Hot Mix Asphalt Plants, Table 11.1-9 for a drum mix dryer which can be fired with natural gas.

Pollutant:	Ef	lb/ton x	400	ton/hr x	8760 hr/yr
			2000	lb/ton	

Hazardous Air Pollutants (HAPs):**Potential To Emit****Limited Emissions**

Acetaldehyde:	1.30E-03	lb/ton =	2.28 ton/yr	2.28 ton/yr
Acrolein:	2.60E-05	lb/ton =	0.05 ton/yr	0.05 ton/yr
Benzene:	4.10E-04	lb/ton =	0.72 ton/yr	0.72 ton/yr
Ethylbenzene:	3.80E-04	lb/ton =	0.67 ton/yr	0.67 ton/yr
Formaldehyde:	2.40E-03	lb/ton =	4.20 ton/yr	4.20 ton/yr
Methyl Ethyl Ketone:	2.00E-05	lb/ton =	0.04 ton/yr	0.04 ton/yr
Propionaldehyde:	1.30E-04	lb/ton =	0.23 ton/yr	0.23 ton/yr
Quinone:	1.60E-04	lb/ton =	0.28 ton/yr	0.28 ton/yr
Toluene:	7.50E-04	lb/ton =	1.31 ton/yr	1.31 ton/yr
**Total Polycyclic Organic Matter (POM):	5.810E-04	lb/ton =	1.02 ton/yr	1.02 ton/yr
Xylene:	1.60E-04	lb/ton =	0.28 ton/yr	0.28 ton/yr
Total HAPs =			11.07 ton/yr	11.07 ton/yr

** total POM includes 2-Methylnaphthalene, Acenaphthene, Acenaphthylene, Anthracene, Benzo(a)anthracene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Chrysene, Fluoranthene, Fluorene, Naphthalene, Phenanthrene, and Pyrene.

**** miscellaneous ******40 CFR Part 60.90, Subpart I (Standards of Performance for Hot Mix Asphalt Plants) Compliance Calculations:**

The following calculations determine compliance with NSPS, which limits stack emissions from asphalt plants to 0.04 gr/dscf:

34.19 ton/yr *	2000 lb/ton *	7000 gr/lb =	0.017 gr/dscf	(will comply)
525,600 min/yr *	52,800 dscf/min			

Note:

$$\begin{aligned}\text{SCFM} &= 75,000 \text{ acfm} * (460 + 68) / (460 + 290) \\ &= 52,800 \text{ scfm}\end{aligned}$$

Company Name: Corydon Stone and Asphalt Inc.
 Plant Location: 1100 Quarry Road, Corydon, IN 47112
 County: Harrison
 Date: 09/24/99
 Permit Reviewer: Yvette de los Angeles/EVP

** emissions before controls **

(TSP)

Storage	** see below **				0.14 tons/yr
Transporting	** see page 5 **				1.20 tons/yr
Loading & Unloading	70 ton/hr x	0.0033 lb/ton	/ 2000 lb/ton x	8760 hr/yr =	1.01 tons/yr
Crushing (primary)	ton/hr x	0.00504 lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.00 tons/yr
Crushing (secondary)	ton/hr x	0.00504 lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.00 tons/yr
Crushing (tertiary)	ton/hr x	0.00504 lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.00 tons/yr
Screening	70 ton/hr x	0.0315 lb/ton	/ 2000 lb/ton x	8760 hr/yr =	9.66 tons/yr
Conveyor Transfer	70 ton/hr x	0.00294 lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.90 tons/yr
Total emissions before controls:					12.91 tons/yr

Emission factors based on US EPA's AP-42, 4th Edition, Ch. 11.2.3; Supplement E, 9/98, Ch. 13.2.2; 5th Edition, Ch. 13.2.4, and 11.19.2.

** emissions after controls **

Storage	0.14 tons/yr x	10% emitted after controls =	0.01 tons/yr
Transporting	1.20 tons/yr x	50% emitted after controls =	0.60 tons/yr
Loading & Unloading	1.01 tons/yr x	100% emitted after controls =	1.01 tons/yr
Crushing (primary)	0.00 tons/yr x	10% emitted after controls =	0.00 tons/yr
Crushing (secondary)	0.00 tons/yr x	10% emitted after controls =	0.00 tons/yr
Crushing (tertiary)	0.00 tons/yr x	10% emitted after controls =	0.00 tons/yr
Screening	9.66 tons/yr x	10% emitted after controls =	0.97 tons/yr
Conveying	0.90 tons/yr x	10% emitted after controls =	0.09 tons/yr
Total emissions after controls:			2.68 tons/yr

** fugitive vs. nonfugitive **

Storage	0.14 tons/yr x	10% emitted after controls =	0.01 tons/yr
Transporting	1.20 tons/yr x	50% emitted after controls =	0.60 tons/yr
Loading / Unloading	1.01 tons/yr x	100% emitted after controls =	1.01 tons/yr
Total fugitive emissions:			1.63 tons/yr
Crushing (primary)	0.00 tons/yr x	10% emitted after controls =	0.00 tons/yr
Crushing (secondary)	0.00 tons/yr x	10% emitted after controls =	0.00 tons/yr
Crushing (tertiary)	0.00 tons/yr x	10% emitted after controls =	0.00 tons/yr
Screening	9.66 tons/yr x	10% emitted after controls =	0.97 tons/yr
Conveying:	0.90 tons/yr x	10% emitted after controls =	0.09 tons/yr
Total nonfugitive emissions:			1.06 tons/yr

** storage **

Storage emissions, which result from wind erosion, are determined by the following calculations:

$$\begin{aligned}
 E_f &= 1.7(s/1.5)(365-p)/235(f/15) \\
 &= 2.31 \text{ lb/acre/day} \\
 \text{where } s &= 2 \text{ \% silt content of material} \\
 p &= 125 \text{ days of rain greater than or equal to 0.01 inches} \\
 f &= 15 \text{ \% of wind greater than or equal to 12 mph}
 \end{aligned}$$

$$\begin{aligned}
 E_p (\text{storage}) &= E_f \cdot sc \cdot (40 \text{ cuft/ton}) / (2000 \text{ lb/ton}) / (43560 \text{ sqft/acre}) / (25 \text{ ft}) \cdot (365 \text{ day/yr}) \\
 &= 0.14 \text{ tons/yr} \\
 \text{where } sc &= 9,000 \text{ tons storage capacity}
 \end{aligned}$$

Note: This calculation is from AP-42, Fourth edition. The calculations were not included in subsequent editions of AP-42, therefore, it is up to the permit reviewers discretion to use this calculation.

Company Name: Corydon Stone and Asphalt Inc.
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* * transporting * *

The following calculations determine the amount of emissions created by unpaved roads, based on 8760 hours of use and AP-42, Ch 13.2.2 (Supplement E, 9/98).

$$\begin{aligned} & 2.5 \text{ trip/hr} \times \\ & 0.076 \text{ mile/trip} \times \\ & 1 \text{ (round trip) } \times \\ & 8760 \text{ hr/yr} = 1664.4 \text{ miles per year} \end{aligned}$$

$$\begin{aligned} E_f &= k \cdot [(s/12)^{0.8}] \cdot [(W/3)^b] / [(M/0.2)^c] \\ &= 1.44 \text{ lb/mile} \\ \text{where } k &= 10 \text{ (particle size multiplier for PM-10) } \quad (k=10 \text{ for PM-30 or TSP}) \\ s &= 0.5 \text{ mean \% silt content of unpaved roads} \\ b &= 0.5 \text{ Constant for PM-10 (b = 0.5 for PM-30 or TSP)} \\ c &= 0.4 \text{ Constant for PM-10 (c = 0.4 for PM-30 or TSP)} \\ W &= 10 \text{ tons average vehicle weight} \\ M &= 0.2 \text{ surface material moisture content, \% (default is 0.2 for dry conditions)} \end{aligned}$$

$$\frac{1.44 \text{ lb/mi} \times 1664.4 \text{ mi/yr}}{2000 \text{ lb/ton}} = 1.20 \text{ tons/yr}$$

* * aggregate handling * *

The following calculations determine the amount of emissions created by truck loading and unloading of aggregate, based on 8760 hours of use and AP-42, Ch 13.2.4 (Fifth edition, 1/95).

$$\begin{aligned} E_f &= k \cdot (0.0032) \cdot (U/5)^{1.3} / (M/2)^{1.4} \\ &= 0.0033 \text{ lb/ton} \\ \text{where } k &= 0.74 \text{ (particle size multiplier)} \\ U &= 10 \text{ mile/hr mean wind speed} \\ M &= 3 \text{ \% material moisture content} \end{aligned}$$